



Military Preparedness^a

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Military preparedness demands personnel, weapons, equipment, and supplies of adequate quality in the proper mix and in sufficient quantities to accomplish assigned missions wherever and whenever directed. Preparations take present and projected requirements into account. Perceived threats, doctrines, plans, programs, military infrastructure, the industrial base, and budgets strongly shape results. Problems develop whenever any aspect becomes deficient.

--Collins, John M. (2004), *Military Preparedness: Principles Compared with U.S. Practices*²

A. A Bifurcated Question

"Is the military prepared?" is a question in the back of minds of many of our national and senior military leaders. To Congress, the answer to that question provides a benchmark of confidence in the military leadership's ability to address threats to national security interests. For senior military leaders, it is a question that underpins the quality and quantity of trained and ready forces provided to combatant commanders.

The question seems a simple one at the national level, but in defense management practice it is actually two questions rolled into one, and the questions are usually oriented toward an objective or against a threat. The first question is "are the capabilities on hand prepared for X?" which is a *readiness* question. Assuming that the capabilities on hand are properly matched against adversaries known and anticipated in national security documents, *readiness management* processes and systems assess those capabilities and aid in remedial action to correct deficiencies. The second question is "are all the right capabilities on hand for X?" Even if all current capabilities are on hand and fully mission capable, this still may not be enough to meet a particular requirement. *Capabilities management* processes serve to identify and prioritize requirements for

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new capabilities, then develop and field them. A common term for the effect that capabilities management provides is ‘modernization.’

Readiness and capabilities management systems are distinct as they involve different actors handling different information, but their ultimate convergence in the national-level discourse is important. The single overarching question drives the energy in both systems, yet readiness and modernization often compete against each other for defense dollars. Therefore, it is useful to consider holistically what these systems are intended to achieve. This paper proposed the term *preparedness* to represent the holistic perspective.

This paper is divided into three parts. The first defines and operationalizes the concept of *preparedness*, using Collins’ nine principles to guide dialogue on whether a nation is ‘prepared’ to face an adversary. Principles, processes, and systems associated with readiness management and capabilities management will then be reviewed separately as practiced in the current U.S. Department of Defense.

B. Collins’ Nine Principles of Preparedness

As *preparedness* is not defined in joint doctrine, this paper proposes the following definition, “the actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from threats to national security interests.”³ Preparedness must be measured against some benchmark, whether a strategy document, campaign plan, or assigned mission that identifies threats and the Nation’s anticipated response to them. The Joint Strategic Planning System’s outputs – such as the National Military Strategy and the Joint Strategic Capabilities Plan – contribute to defining these benchmarks.

Below is a summary of nine benchmarks, or ‘principles’ of preparedness presented by John M. Collins in 1994 that describe what constitutes a favorable assessment of a joint force, which could inform the development of specific measures against missions and tasks. These principles were offered in a Congressional Research Study report as a companion to the Principles of War from the 1993 version of the Army Field Manual 100-5 and analogous doctrine from the other services. As joint principles, they help “U.S. planners, programmers, and budgeters fashion ready, sustainable armed forces, at reasonable costs”⁴. As Collins wrote these shortly after the Cold War, this paper updates them to reflect the 2010s-era national security environment.

Purview. Armed forces perform best when organized, equipped, and trained to fulfill particular responsibilities.⁵ Collins acknowledged that each service had roles that “fundamentally shape[d] readiness and sustainability requirements”, unique functions, and specific missions. He acknowledged that redundancies were sometimes needed, but if they fell outside those functions and missions they would receive lower priority. In current times with the advent of advanced technologies and cyber and space operations; these roles, functions, and missions should not be construed as static. Roles and missions are also important in terms of military interface with other

national government agencies, such as in the realm of military support to what the U.S. refers to as 'homeland security' and the boundaries between defense and law enforcement.

Regional Peculiarity. *Armed forces perform best when organized, equipped, and trained to accomplish missions in particular geographic regions.*⁶ Acknowledging the geographic and cultural differences, Collins believed that "Armed forces expressly prepared for employment in any given environment normally function less well elsewhere until they complete time-consuming and often costly transitions."⁷ Although this is arguably less the case today given how well forces forward stationed in Korea and Europe adapted to operations in Iraq and Afghanistan, regional specialization continues to be recognized as a necessity for better cultural integration and preparedness for operations.⁸ Even for militaries whose interests and scope are largely local, this principle applies due to the propensity for increasing numbers of nations to provide contingents for international peacekeeping efforts.

Quantitative Sufficiency. *Armed forces perform best when manpower and materiel are numerically sufficient to fulfill assigned roles, functions, and missions in designated regions.*⁹ This principle is a corollary of the first two, and touches on the amount of structure available (does the Army have enough brigade combat teams to be allocated against each region given the threat) and the levels of readiness within the structure (number of weapons, equipment, and supplies). Sufficiency is key because the expense of sustaining readiness in modern times dissuades most nations, including the U.S., from pursuing capacity that may be excessive.

Qualitative Superiority. *Armed forces perform best when manpower, weapons, equipment, and supplies are superior to those of the most capable prospective opponents.*¹⁰ This is a very different question than posed quantitatively. If the capabilities of a weapons system in brigade combat teams are overmatched by an adversary, then the quantitative measure of readiness becomes less important and the sending of more brigade combat teams into conflict is not a sure path to victory.

Complementarity. *Armed forces perform best when the mix maximizes the strengths and minimizes the weaknesses of Active and Reserve components.*¹¹ Similar to the above discussion of quantitative sufficiency, the cost-benefits between sustaining capabilities in active versus reserve components necessitate a proper balance. Collins noted that, "It is cost ineffective to assign active forces missions that Reserve Components could perform well. Capabilities suffer when [reserve component] receive missions for which [active component forces] are better qualified".¹² In the past, the U.S. Army put the preponderance of combat arms in the active force and combat support and combat service support in the reserves. Whether that force mix is right for the present time is a matter of debate. Each national military faces its own debate on force mix. For some, it may be along active-reserve lines while for others it may be defense-gendarmerie or other divisions.

Infrastructure. *Armed forces perform best when diversified installations facilitate essential training and furnish essential support.*¹³ Collins said that "Qualitative excellence depends on diversified bases and facilities." Infrastructure is costly but vital, so balancing the various needs of the force to sustain quantitative and qualitative readiness is vital to ensure the recruiting,

manning, training, equipping, sustaining, developing, mobilizing/de-mobilizing, deploying/re-deployment, and caring for the forces and their families. Unlike in previous eras, today in the U.S. acquisition of land to create new bases is less likely absent a dire threat to national security. The U.S. military must align effectively and efficiently its existing properties to the readiness needs of the force.

*Compatibility. Armed forces perform best when they prepare to participate in multiservice operations, with allies whenever appropriate.*¹⁴ Collins was a proponent of interoperability in capabilities, doctrines, and plans. In modern times, ‘interoperability’ has become even more important as the ability to operate seamlessly across a joint, interagency, intergovernmental, and multinational front is crucial for success in both combat and stability operations. Interoperability has been deeply embedded in NATO culture and serves as a pillar of readiness in other regional security apparatus such as the African regional standby brigades.

*Foresight. Armed forces perform best when actions to ensure present and future preparedness proceed concurrently in proper balance.*¹⁵ Collins’ warnings about readiness decisions under tight budgets ring true today, “there are strong tendencies to ... shortchange tomorrow when purse strings are tight.”¹⁶ Efforts at modernization have tried to strike this balance in ensuring adequate capability to address threats as new capabilities were under development.

*Financial Sufficiency. Armed forces perform best when funds are sufficient to acquire, operate, maintain, and otherwise support the military establishment that foreign policies, military strategies, roles, functions, and missions require.*¹⁷ This is especially relevant with regard to today’s tight budgets, but it has always been the case. Society expects much of the armed forces and the U.S. has served in a leading role as guarantor of global security, especially after the collapse of the Soviet Union. In times of fiscal strength, the world has looked to the U.S. to intervene (militarily or otherwise) more aggressively in on-going conflicts or post-conflict instability, humanitarian disasters, or development of democratic institutions and transformation of militaries under the rule of law. In times of fiscal constraint, the expectations of the world do not necessarily diminish, nor do those of U.S. allies and partners. Thus, decisions affecting readiness carry second- and third-order effects on national security policy.

The tension between readiness and modernization is apparent in a number of these principles, especially foresight. As adversaries evolve in their capabilities and capacities, the U.S. might be limited in its ability to assess their impact on the joint force, which affects preparedness decisions. At what point does quantitative insufficiency, which may include capabilities on-hand that are not ready, become qualitative inferiority, in which the capability no longer measures up to the adversary? As infrastructure degrades over time, at what point does it cease to provide training and essential support despite any efforts to sustain it, and therefore must be replaced?

Within readiness and modernization are many other tensions that are important at the joint and Defense level. These will now be presented.

C. Readiness Management

Readiness management systems exist to allow for rational systematic assessment of readiness of currently acquired or accessible capabilities. Often being rational and systematic, readiness management systems address the needs of a military's stakeholders in readiness decisions with consistency and clarity.¹⁸ Effective systems allow national decision makers to consider important strategic questions like: What do existing war plans ask the joint force to do? What are the most likely and most dangerous emerging threats facing geographic combatant commanders in their theaters? Where are joint capabilities distributed around the world (stationed units, prepositioned assets, etc.), and how can they be mobilized and employed where and when they are needed?

Several studies during the past twenty years have looked at structures of readiness management systems. Two themes became apparent from the literature. One was the need to integrate three separate and distinct appraisals: the peacetime posture of units, the mobilization capacity to bring those units to wartime footing, and the sustainment of operations.¹⁹ The second regarded tensions or choices related to the measures and resource management plans that such systems would employ.²⁰

C.1. Three Appraisals ("Pillars"²¹) of Readiness Management Systems

A 1991 RAND study differentiated several readiness appraisals, each constituting a "pillar" of readiness management that required unique information emanating from different actors. The following is adapted from that study for today's environment.

Readiness at Echelon. This encapsulates the hierarchical readiness levels from individual to joint force.²² These appraisals determine what is necessary to bring an "entity" defined as "individuals, teams, sections, flights, companies, squadrons, battalions, ships, groups, wings, divisions, task groups, air forces, fleets, corps, expeditionary forces, armies, major commands, Services, defense agencies, and military departments, to the Department of Defense as a whole"²³ from pre-mobilization to a warfighting standard to deliver the capabilities for which they were designed.²⁴ Readiness reporting is nested, such that readiness reporting of larger entities incorporates reporting of subordinate entities.

Mobilization Readiness. Mobilization readiness appraisals measure the capability and capacity to "assemble and organize national resources to support national objectives in time of war or other emergency."²⁵ Examples of entities being appraised are induction and individual training centers, combined training centers and ranges, distribution of materiel stockpiles, and materiel production.²⁶ These include non-DoD entities, defined as "those civil organizations that contribute to the ability of DoD entities to accomplish their tasks".²⁷

It is useful to further subdivide these appraisals to *force mobilization* and *civil mobilization*, as these involve distinct entities performing different functions.²⁸ Force mobilization readiness

appraises time and resources necessary to prepare active elements, activate reserve elements, tailor force packages, and prepare those packages for employment.²⁹ It is more comprehensive than readiness at echelon because it includes the capacity to provide the additional training, configure entities with its required manning and equipment, and deploy them in the designated sequences and quantities.³⁰ Civil mobilization concerns non-DoD entities, such as “the transformation of industry from its peacetime activity to the industrial activity necessary to support military objectives,”³¹ mobilization of national and foreign infrastructure such as ports or bases used for power projection,³² and civilian hospitals and medical services.³³ .

Sustainability Readiness. This concerns the capacity to establish and employ lines of communication (LOCs) end-to-end when needed, and consumption and attrition rates during operations.³⁴ It can include the supply packages that the force initially deploys with,³⁵ materiel and manpower stocks amassed during mobilization not immediately allocated to the force,³⁶ and production or acquisition of supplies in theater.³⁷

C.2. Choices in Readiness Measures

Designers of readiness management systems try to establish measures for the efficient and reliable input of information. As an example, unit equipment readiness typically involves a quantitative ‘measure’ such as a percentage of like systems within the unit that are combat ready at a given time. Mobilization readiness might be based on a quantitative measure of percentage of production capacity coupled with a qualitative assessment of how quickly that production capacity could increase in case of emergency. Readiness might be expressed qualitatively, summarizing the appraisal using a simple ‘stop-light’ scale of green (fully ready), amber (qualified ready), or red (not ready). The creation of measures should be driven by how the appraisals can best support decision making. Accuracy and verifiability, of course, are important. However, the increasing subjectivity at higher levels of analysis reinforces the role of professional judgment in strategic readiness appraisals.

Consequently, there are decisions to be made regarding how to build measures so to foster decision making. The following are tensions drawn from several studies concerning the nature of the standards set and the nature of the data collected and assembled:

Subjectivity versus Objectivity. The tendency in DoD is to favor objectivity and constrain subjectivity, as this is perceived to reduce bias in reporting even though this increases the data required and complexity of analyses.³⁸ Certainly at lower echelons, one may expect metrics to be easier to define and apply, but at upper echelons this can be more challenging as the range of potential data inputs increases.³⁹ Thus, subjectivity is difficult to eliminate entirely. It is recognized that “commanders at all levels have experience and professional judgment that a readiness reporting system would be foolish to ignore.”⁴⁰ Readiness management systems should consider what “intangibles” warrant the inclusion of a commander’s professional judgment without risking the introduction of bias or undue manipulation of the ratings.⁴¹

Aggregation and Summarization. The quantity of raw data, whether subjective or objective, is too great to be useful, hence the management system must provide means to reduce it to useful summary information tailored to support decision making. The complexity of the data makes this harder than it sounds. The nesting of readiness levels from individual to joint force appears logical, but bias and misrepresentations can creep in based on the methods used to aggregate data from lower echelons to higher ones. For example, a Brookings Institution report questioned how both 90% and 100% of personnel fill represented “C-1,” the highest rating, but a drop of only one percentage point to 89% changed the rating category and disproportionately altered the scope of the unit response.⁴² The same report also questioned the validity of division ratings when the same number of battalions below C-1 could produce a division rating of C-1 or C-2 depending solely on how the C-2 battalions were distributed among the brigades.⁴³

There is also a question of sensitivity -- to what degree is the system sensitive to specific data outliers? An old historical example shows how this presents a problem. Consider a unit with two platforms, one that is more combat critical but lower in quantity and one that is less combat critical in nature but much higher in quantity. One would ordinarily presume that the state of the former might outweigh the state of the latter, but that depends on how the system aggregates different capabilities together into a single rating.⁴⁴ Sensitivity becomes especially challenging when changes in priorities of missions changes which capabilities are more mission critical. For example, one commentator on defense readiness noted that “some of the capabilities in highest demand [in the 2000s] are truck drivers and civil engineers.”⁴⁵

The choice of summary ratings and their interpretation is another factor. As an example, the Defense Readiness Reporting System (DRRS) uses three rating levels (green, amber, and red which mean “yes,” “qualified yes,” and “no”)⁴⁶ while the Chairman’s Readiness System⁴⁷ employs a four-level scale (RA-1 through RA-4). In the latter case, RA-2 and RA-3 essentially subdivide the “qualified yes” from DRRS.⁴⁸ Although the relationship between the two systems is documented in the Chairman’s Guide, the interface between different rating profiles has the potential to introduce bias. There can also be summary ratings that fall outside the ordinal scheme, such as the “C-5” rating that represents reorganization and is not considered a lower rating than “C-4.”

Comprehensiveness. This addresses what is reportable versus not reportable. The clear trend in DoD is to report as comprehensively as possible, including all entities affecting the readiness of the joint force and all types of missions expressed in national security documents.⁴⁹ This is driven both internally, as DoD seeks to gain greater real-time understanding of its readiness, and externally through Congressional mandate.⁵⁰ The challenge for designing the system to be comprehensive is two-fold. First, are there entities whose role in readiness is negligible such that energy to collect the data outweighs the benefits? Certainly there are DoD entities whose role in readiness is limited and can be exempted (e.g., ROTC detachments⁵¹). Others such as higher headquarters (e.g., Office of the Secretary of Defense, joint and service staffs, etc.) present more complex challenges, including determining the suitable readiness

metrics that are internally valid (that is, actually measure what they purport to measure) and resourcing the needed data collection and analysis functions, especially at a time when the impetus is to reduce the sizes of headquarters.

Fixed versus Cyclic Readiness Management Models. 100% readiness of all DoD entities at all times is not possible given finite resources, finite organizational energy, and a complex and shifting national security environment. Therefore, managing readiness involves optimizing readiness across entities and minimizing risk. Historically, this has presented a choice among various ways of determining which entities are to be at highest readiness and when and which are allowed to drop to lower readiness levels. The choice is represented as a spectrum between fixed and cyclic readiness management.

A fixed readiness management model establishes minimum-accepted levels of readiness assigned to all units and activities in the force. These minimal levels will differ among entities, and the differences will tend to be long-standing and static. During the Cold War, this was known as “tiered readiness,” which established that forward stationed forces and certain U.S.-based rapid response units were sustained at higher states of readiness than other forces. Fixed readiness models made sense (although they had their detractors) given the Cold War posture with U.S. Army units on the front lines in Europe and Korea. It also made sense for some reserve component capabilities whose density is so low that cycling readiness was impractical. However, it earned a poor reputation because of the problems of *haves* and *have nots* it engendered.

Cyclic readiness models place units through regular rotations of periods at higher or lower readiness, including possible periods of stand-down in which the unit would reorganize or reconstitute in full. The Army Forces Generation (ARFORGEN) model is largely cyclic. This model provides flexibility for fielding new capabilities, managing deployments, allowing for regular resetting or recapitalization of equipment, and reducing alert fatigue among service members. However, the model depends on the regularity and reliability of the stand-down phase. Navy carriers are an example, as delays in exercising periodic maintenance has a ripple effect across the fleet, which cannot necessarily stay afloat for longer periods of time without impact to its own readiness.

C.3. Making Readiness Decisions

Harrison (2014) described the outputs of readiness management systems to be an assessment of the capabilities of the force to meet mission requirements.⁵² This is also an input into decisions regarding what strategic actions to take, which include the provision of professional military advice back to Congress on funding. This section address several tensions and choices proposed in 1995 by Betts (also cited in Harrison) facing decision makers, updated for the present-day environment:

Investment versus Consumption. This gets to tensions between Betts’ own questions, readiness for *What* versus for *When*. “Is full efficiency for combat two days from now closer to

genuine readiness than having a larger military mass that could be fully efficient with two months of fleshing out?"⁵³ Consider a decision to either fund the operational readiness of existing structure versus modernizing it. Assume the Army had to provide ten Brigade Combat Teams to satisfy existing warplans, and had a total of fifteen in the inventory. The options are to fund ten so they would be 100% ready and could deploy in the required time frame and leave the other five at lower states of readiness, or to invest the funds in modernizing the other five with new equipment and capabilities but have the ten at 80% readiness and deployability in 30 days. Which would be the better choice?

The answer is 'it depends.' Prioritizing operational readiness makes more sense when the likelihood of employment is higher given the security environment, but as Betts explains this approach tends to become wasteful because of the need to sustain and consume higher volumes of spare parts or fuel to stay 100% ready for 96 hour deployability at all times.⁵⁴ It also assures that the quantity of capability remains unchanged, whereas the investment option provides greater potential in the quantity so long as the risk is acceptable of having existing units requiring longer lead times. Typically, the Army manages readiness so that different portions of the force are at different levels of readiness to balance operational readiness with investment in modernization. But, the decisions must consider the reliability in gauging the amount of capability needed where and when. Lead times for achieving full readiness are difficult, if not impossible, to compress when crises occur.

Mass versus Efficiency. Betts (1995) offers the following description of this dichotomy, which can be either a trade-off or complementarity: "Money saved by limiting the equipment or training for reserve forces could, in principle, be used to buy a larger corps of reservists with less equipment and training. In practice, however, modern equipment and challenging training can also boost reservists' morale, which in turn induces re-enlistment and thereby increases personnel end strength."⁵⁵

"Bloc obsolescence"⁵⁶ is particularly identifiable for the platform-centric Air Force and Navy, where funding operational readiness for outdated systems becomes a cost-multiplier as parts and maintenance demands increase. It is also a concern for the Army should the pace of modernization slow to the point of older systems being maintained beyond expected service life in order to plug capability gaps in anticipation of new systems fielding.

Readiness versus Itself in Operations and Training. "During peacetime military operations, units go into the field to practice their functions in the closest possible approximation of combat. ... The price of achieving peak readiness through such operations is its evanescence and self-destruction. ... Operations overheat the system."⁵⁷ How much training is sufficient before it drains human energy, causes unacceptable increases in broken equipment, or induces safety risks? That has always been a difficult question to answer. Particularly in times of peace, it is generally preferred to seek appropriate balances between realistic training and preservation of

manpower, equipment, and sustainment so to minimize the reconstitution required to return to a state of desired readiness.

In a situation where the global security environment demands routine crisis response, this dichotomy is problematic. The demands of crisis response typically differ from conventional warfare needs, and actions to bring units to readiness for crisis may see other skills atrophy. Transitioning from a crisis situation to conventional warfare⁵⁸ is every bit as complex as the inverse, which the U.S. Army experienced in Iraq and Afghanistan. Additionally, joint “Phase Zero” activities such as partner security capacity building also competes for readiness time, and these activities normally constitute a distinct third set of military readiness requirements.

Readiness versus Itself in Standby Posture. How long can a unit stay at a posture for immediate no-notice or short-notice deployment? How much of the force needs to be at that posture? In the past, the military conferred special respect to those units who were ‘first in, last out’ such as rotational ready brigades or airborne infantry. Under the total force commitments and high operations tempo in Iraq and Afghanistan, the distinction between these quick reaction forces and the remainder of the general purpose forces was blurred. Returning to relative peacetime, however, may cause the re-emergence of distinct responsiveness levels among different parts of the force.

“Alert fatigue and readiness decay” are key considerations in any readiness model.⁵⁹ Units on a high state of alert readiness tire out manpower and wear out equipment, with reconstitution becoming a necessity. This is not only a concern for units on alert during peacetime, but also for units who have been called forward to staging bases in the advent of a potential crisis. The episodic responses across the Iraqi Disarmament Crisis in the 1990s (resulting in Operations VIGILANT WARRIOR, DESERT THUNDERS I & II, and DESERT FOX) along with the long-standing Operations NORTHERN WATCH and SOUTHERN WATCH arguably generated alert fatigue, affecting readiness levels of units.

C.4. Example - DRRS

The Defense Readiness Reporting System (DRRS) is an example of a readiness management system as described above. Around the time of its launch, Junor (2005) said that DRRS “is designed to track detailed information on what forces, and even individuals, can do on a near-real-time basis. [It will provide] force managers at all levels the tools and information to respond to emerging crises and the ability to assess the risks of conducting such operations” (p. 31). The literature on DRRS shows how the above considerations manifested themselves in the design and use of the system. Because DRRS, like any defense management process, is continuously evolving, the important questions for senior leaders is less about how the process is now, but what it needs to be. Thus, the below discussion is aimed at critical evaluation of any readiness management systems for the purposes of changing them.

Quantitative-Qualitative Balance. Junor (2005) lays out some of the shifts in design considerations from DRRS' predecessor, the Global Status of Resources and Training System, or GSORTS. In moving from "resources" to "capabilities," DRRS represents a shift in favor of qualitative measures over GSORTS' more heavily quantitative focus.⁶⁰ Consider the following quote:

The most common way to answer the question of whether an organization is capable of doing something is to avoid the matter entirely and address the easier question of how many resources the organization has. Answering the first question requires the synthesis of complex, sometimes intangible factors that cannot be replicated by a canned algorithm.⁶¹

However, qualitative assessments have their disadvantages, as inconsistency and ambiguity can appear when aggregating results. Trunkey (2013) reported that DRRS lacked "standardization across services because the services define missions and resource areas differently and selectively report against potential missions (although the data formats are all the same)."⁶² As DRRS implementation continues, questions will indeed surface about how (and whether) such standardization is to be pursued. Do the inconsistencies inherent in relying on qualitative judgments by senior leaders induce too much risk, or is there more risk in shifting back to an emphasis on the quantitative and the inherent limitations of "canned algorithms?"

Emphasis on Unit Readiness, Questions on Warfighting Readiness. Junor emphasized gathering readiness information on units and individuals so DRRS can accurately report on their abilities to conduct tasks and missions to prescribed standards.⁶³ Additionally, she centers responsibility for reporting on commanders, who "must judge whether they can perform a particular task today – *yes or no*."⁶⁴

However, Trunkey expresses as a remaining challenge for DRRS to capability to measure how well the force can establish and sustain lines of communication.⁶⁵ Thus, DRRS does not emphasize measuring sustainability readiness as defined in the 1991 RAND report. Consider the following quote:

Every year, DoD and the Congress make decisions about how much money to appropriate for the operation and maintenance accounts that pay for fuel, maintenance, and spare parts to support operational and training activities, and the military personnel accounts that pay the personnel costs of those activities. However, it has been difficult – if not impossible – to track how funding levels in those accounts affect [readiness] scores, either in general or for specific units. DRRS has the potential to establish stronger analytical relationships between funding levels and readiness, but that potential has yet to be realized. Additional changes to DRRS, such as adding linkages to budgetary accounts or creating new types of reports, could help establish those relationships.⁶⁶

The question for decision makers in the design of DRRS or potential companion system goes beyond how to add these measurements to the portfolio. Do the costs involved in additional

tracking inputs to satisfy such measures exceed the benefits of responding to these types of queries? Can existing qualitative measures by the functional combatant commanders, for example, be expanded or extended to provide targeted assessment useful by such external stakeholders? How reliable might such assessments be, and what is the risk of making bad decisions based on such assessments?

D. Capabilities Management

Although the majority of this article concentrates on readiness, one of the potential outcomes of a readiness decision regards whether or not a readiness shortfall actually represents a capabilities gap. This is certainly possible in cases where requirements change such that available capabilities can no longer meet them, capabilities have degraded or are expected to degrade over time such that the requirements can or will no longer be met, or non-DoD capabilities become problematic for reasons outside DoD control (e.g., foreign power projection facilities suddenly become unavailable or contentious). Although readiness management and capabilities management are distinct processes, the former can provide inputs to the latter.

D.1. Defining Capability Gaps

The first question one must ask is, “What constitutes a capabilities gap?” For this, we return to Collins (1994), whose principles suggest ways of expressing deltas between existing capabilities and those required. Closing particular types of gaps may involve uniquely different processes or systems, but ultimately any action begins with a strategic decision regarding which gaps to close, when, and whether or not to close them entirely. The following is a simple taxonomy of capability gaps and how they might be addressed by joint decision makers. The nature of the gaps also suggest how to quantify or qualify the risk associated with taking no action or partial action to close the gaps.

Quantitative Gaps. This is the simplest type of gap, and it is based on Collins’ principle of quantitative sufficiency. If a war plan shows that the force requires X of something and only x exists in the structure, then the delta is $X-x$ and it is a matter of acquiring the additional amount of capability needed. In practical terms, one rarely sees capability gaps expressed this cleanly, but it is the logic behind discussions over numbers of major platforms (e.g., ships, planes) or combat formations (e.g., brigade combat teams, marine expeditionary units). In cases of shortfalls, the question for decision makers becomes whether to acquire more of the same capabilities, which may be quicker, or instead devote resources toward newer qualitatively-superior capabilities, which may be better in the long-term.

Qualitative Gaps. This is probably the most common type of gap discussed, and it is based on Collins’ principles of qualitative superiority, purview, and regional peculiarity. This gap occurs when warplanning suggests a particular capability is needed that presently does not exist in the force structure and must be developed or acquired, or the available capability is no longer relevant because it is inherently inferior against current adversaries or otherwise not effective or

efficient in meeting mission requirements. Because the capability does not exist in the force, articulating it as a validated requirement is a vital first step in identifying corrective action. Decision makers then consider whether this requirement necessitates a proprietary military solution (such as employing science and technology, known as “S&T”) or if it can be satisfied using available commercial off-the-shelf (COTS) systems.

Qualitative Mismatches (interoperability). Based on Collins’ principle of complementarity and compatibility, this is another common type of gap which often surfaces in joint force decisions, and it exemplifies the challenges of balancing service-specific needs with the needs of the joint force. An example may be similarly capabilities available within the joint force or between the joint force and alliance/coalition partners. However, there are interoperability issues that prevent these capabilities from working together. An example of a current interoperability gap regards the long-standing efforts to construct the Global Information Grid out of the myriad and incompatible information technology systems in use at service and agency level.⁶⁷ In some cases, joint decision makers may decide to close the gap through selectively upgrading the various capabilities to make them more interoperable with each other. In others, the decision may be to supersede all such capabilities with a single joint-based platform. The trade-offs are time, resources, and sustainability. Selectively upgrading may be a quicker and cheaper alternative that would more likely become unsustainable over time. The latter avoids the diffusion of multiple systems in the force, but would clearly take longer and potentially be far more expensive.

D.2. Considerations for Decision Support Systems

The decision support systems that foster capabilities management should consider Collins’ principles of foresight and financial sufficiency, as the types of gaps addressed are complex and longer-term, probably multi-year (otherwise, normal acquisition processes would be sufficient without the involvement of senior leadership). Therefore, such decision support systems should consider the following:

Clarity and Comparability. In other words, how does a system present proposed capabilities to decision makers in ways that can be understood and fairly compared so the best options are chosen? This is not an absolute in the system’s design, as it is not always possible to set up pure apples-to-apples comparisons. If the requirement is to close a qualitative gap, for instance, that gap may be difficult to define because the user may not know precisely what ways and means are needed. The system should help prevent poorly articulated requirements from passing through and becoming poorly designed capabilities. The system should also help address requirements that are redundant or conflicting via consolidation or management of trade-offs. This can occur across military services sharing similar requirements, but the specifications differ substantively such that no single capability can possibly satisfy all service needs.

Prioritization. A capabilities management system should aid decision makers regarding which requirements must be first acted upon as opposed to those that can wait. It should also be sensitive to changes in the environment which may precipitate changes in priorities.

Affordability. A capabilities management system should aid decision makers regarding which requirements can be satisfied (fully or partially) within time and budgetary limitations. This is a difficult challenge given the uncertainty surrounding the costs of emerging, less mature capabilities. Available time and resources will also change as the environment changes, and the system should help decision makers determine when closing a capability gap becomes infeasible.

D.3. Example -- JCIDS

In the U.S. system, capabilities management is conducted in parallel at the joint and service levels but with the joint level taking priority. The Joint Capabilities Integration and Development System (JCIDS) was implemented in 2003 to “identify and determine whether to validate the need for capabilities proposed by the services, the defense agencies, and the combatant commands.”⁶⁸ Once a requirement is validated, the services pursue planning and programming actions to satisfy the requirement. The challenge for the system’s designers was to support decision makers with useful and consistent ways and means for articulating and judging such requirements on their merits, since they can come in many forms and from many different sources. CJCSI 3170.01H, Appendix A⁶⁹ shows that the requirements can be generated from the services, component commands, and other DoD components (e.g., agencies). The process begins with screening assessments against national security documents and matched against organizational missions, with those requirements warranting further consideration moving forward for staffing, validation, and prioritization.

JCIDS’ process of achieving *clarity and comparability* includes the use of Functional Capability Boards (FCBs) comprising subject matter experts in designated functional areas to “to support capability analysis, strategy development, investment decisions, capability portfolio management, and capabilities-based force development and operational planning”⁷⁰.

Prioritization is managed several ways, such as the availability of mechanisms to identify immediate requirements. Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs) were established as “capability requirements identified by a DOD Component as impacting an ongoing or anticipated contingency operation. If left unfulfilled, UONs result in capability gaps potentially resulting in loss of life or critical mission failure.”⁷¹ Although UONs can be risky in that the hasty development and fielding of a new capability may have long-term implications, this prioritization mechanism proved to be popular with senior leaders because of its responsiveness. Thus, as active operational requirements decreased over the late 2000s/early 2010s, the designers of JCIDS would add an additional prioritization mechanism, the Joint Emergent Operational Need (JEON) to address “anticipated or pending” operations, with JEONs being treated similarly to JUONs.

Although JCIDS literature includes discussions about how it interfaces with the DoD's programming and budgetary systems and its products (e.g., Initial Capabilities Documents) include cost estimates, the system has been criticized for not adequately incorporating *affordability*.⁷² Although GAO cited actions taking place at the Joint Requirements Oversight Council (JROC) to enhance considerations of affordability and re-assess extant validated requirements, these actions were yet incomplete.⁷³ The impact of such changes on the JCIDS process is not yet determined.

E. Conclusion

Managing preparedness is complex business. A force can be wholly ready – all personnel on site, all equipment up and running, and all units fully trained – and yet be unprepared to meet the mission due to gaps in capabilities or problems of interoperability with partners. The vast array and constant dynamics of readiness and capabilities information available in the force is difficult. Therefore, making sense of it so to advise strategic decision makers is vital. Because no matter how one calculates or assesses readiness via scales, ratios, or narratives, the fundamental question remains a binary one. *Is the military prepared?* Deriving the answer to that question is one of the highest priority functions of a defense institution.

¹ This paper reflects solely the views of the authors and not necessarily those of the U.S. Army War College, the U.S. Army, or the Department of Defense. Author can be reached at USAWC-DCLM, 122 Forbes Avenue, Carlisle, PA 17013 or Thomas.p.galvin.civ@mail.mil.

² John M. Collins, *Military Preparedness: Principles Compared with U.S. Practices*, Report #94-48 (Washington, DC: Congressional Research Service).

³ Definition is loosely based on the definition of preparedness used for national emergencies in Barack H. Obama, *National Preparedness*, Presidential Policy Directive 8 (Washington, DC: Department of Homeland Security, 2011). <http://www.dhs.gov/presidential-policy-directive-8-national-preparedness> (accessed 12 September 2014).

⁴ Collins, 41.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ For example, see Defense Daily International, "Army to roll out regionally aligned forces in FY 2013", *Defense Daily International*, March 29, 2012. <web address here>

⁹ Collins.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ S. Craig Moore, J. A. Stockfisch, Matthew. S. Goldberg, Suzanne M. Holroyd, and Gregory. G. Hildebrandt, *Measuring Military Readiness and Sustainability* (Palo Alto, CA: RAND Corporation, 1991).
<http://www.rand.org/pubs/reports/R3842.html> (accessed 10 September 2014).

¹⁹ These were specifically referred to as “pillars” (Moore et al., p. 1)

²⁰ John R. Brinkerhoff and Lawrence B. Morton, “Origin and Evolution of Readiness Reporting,” in John C. F. Tillson (Project Leader), *Independent Review of the DoD’s Reporting System*, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), available at
<http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA406574> (accessed 10 September 2014).

²¹ Moore, 1.

²² Todd Harrison, “Rethinking Readiness,” *Strategic Studies Quarterly*, Vol. 8, No. 3 (Fall 2014), 56.

²³ John C. F. Tillson (Project Leader), *Independent Review of the DoD’s Reporting System*, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), 8.

²⁴ Moore, 79.

²⁵ Moore, 52.

²⁶ Ibid., 74.

²⁷ Tillson, 8.

²⁸ Moore, 74.

²⁹ Ibid., 81. Also see Figure on page 85.

³⁰ Moore, 80.

³¹ Moore, 53.

³² Lawrence B. Morton, Mark R. Lewis, and John R. Brinkerhoff, “The Global Status of Resources and Training System (GSORTS),” in John C. F. Tillson (Project Leader), *Independent Review of the DoD’s Reporting System*, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), C-35.

³³ Ibid., C-36.

³⁴ Moore et al., 99. This category combines the authors' Deployment Readiness and Operational Analysis appraisals as these reside primarily at service or combatant command level whereas the other two levels are primarily service and below. The Operational Analysis discourse, however, focuses on conventional warfare.

³⁵ Robert Fabrie, "Sustainability Aspects of Readiness Reporting," in John C. F. Tillson (Project Leader), Independent Review of the DoD's Reporting System, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), E-1.

³⁶ Moore, 81.

³⁷ Moore, 82.

³⁸ Brinkerhoff and Morton, G-63

³⁹ Harrison.

⁴⁰ Morton, Lewis, and Brinkerhoff, C-56.

⁴¹ Ibid., C-56 and 57.

⁴² Betts, 90-91.

⁴³ Betts, 90.

⁴⁴ Betts, 90.

⁴⁵ L. J. Junor, The Defense Readiness Reporting System: A new tool for force management. Joint Force Quarterly 39 (4th Quarter 2005): 30-33. <http://www.dtic.mil/dtic/tr/fulltext/u2/a479857.pdf> (accessed November 14, 2012), 31.

⁴⁶ R. Derek Trunkey. *Implications of the Department of Defense Readiness Reporting System*, Working Paper 2013-03 (Washington, DC: Congressional Budget Office, 2013). http://www.cbo.gov/sites/default/files/cbofiles/attachments/44127_DefenseReadiness.pdf (accessed 12 September 2014), 13.

⁴⁷ Chairman of the Joint Chiefs of Staff, *CJCS Guide to the Chairman's Readiness System*, CJCS Guide 3401D (Washington, DC: U.S. Joint Chiefs of Staff, 2000), 17.

⁴⁸ The author thanks Dr. Richard Meinhart, DCLM, for this insight.

⁴⁹ Matthew N. Diascro, "Congress and the Readiness Reporting System," in John C. F. Tillson (Project Leader), Independent Review of the DoD's Reporting System, IDA Paper P-3569 (Alexandria, VA: Institute for Defense Analyses, 2000), C-35. A-Annex-1.

⁵⁰ Morton, Lewis, and Brinkerhoff, C-34.

⁵¹ Ibid., note 51 includes a longer list.

⁵² Harrison.

⁵³ Betts.

⁵⁴ Ibid., 46.

⁵⁵ Ibid., 67.

⁵⁶ Ibid., 69.

⁵⁷ Ibid., 70.

⁵⁸ Ibid., 71.

⁵⁹ Ibid., 73.

⁶⁰ Junor, 32.

⁶¹ Junor, 32-33.

⁶² Trunkey, 12.

⁶³ Junor, 32.

⁶⁴ Junor, 32-33 (emphasis original).

⁶⁵ Trunkey.

⁶⁶ Trunkey, 12.

⁶⁷ Defense Science Board, 2009.

⁶⁸ U.S. Government Accountability Office (GAO), *Guidance and Progress Measures Are Needed to Realize Benefits from Changes in DOD's Joint Requirements Process*, GAO Report #GAO-12-339 (Washington, DC: U.S. Government Accountability Office, 2012), 3.

⁶⁹ Chairman of Joint Chiefs of Staff, *The Joint Capabilities Integration and Development Systems*, CJCS Instruction 3170.01H (Washington, DC: U.S. Joint Chiefs of Staff, 2012), Appendix A.

⁷⁰ Ibid., 2.

⁷¹ Ibid., GL-7.

⁷² GAO, 11-12.

⁷³ GAO, 12.

